Why Do Rivers Do That?
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Rivers minimize energy expenditure from one point to the next along their length.
Rivers don’t like fast changes
Rivers that change width abruptly undergo adjustments...

... that ultimately minimize the rate of expansion at any one point
Flood Control Issues in Northern Afghanistan
Rivers that change width abruptly undergo adjustments…

… that ultimately minimize the rate of expansion at any one point
Pyanj River - Khamadoni: Overview of historical changes in river morphology, 1975 - 2006
Rivers that change width abruptly undergo adjustments...

...that ultimately minimize the rate of expansion at any one point.
Rivers don’t like fast changes

River’s don’t have sharp bends like this…

…they form smooth meanders like this to minimize turning at any one point
From Gould (1975)
An 1863 New Hampshire statute gave the Upper Connecticut River and Lake Improvement Company permission to “remove the boulders and rocks and all other obstructions from, and enlarge the channel of” the Connecticut River.
Log jam

Former flow path

Current flow path
Abandoned portion of straightened channel

Log jam

Breakout point

Newly created meander

Flow
Kisilzu River, Tajikistan
Imam Sahib area, Afghanistan

2001
Imam Sahib area, Afghanistan

April 2005
Imam Sahib area, Afghanistan

August 2005
Imam Sahib area, Afghanistan

2009
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